



# **STS-114**

## **FLIGHT READINESS REVIEW**

**FERRY READINESS**

June 29 - 30, 2005



## **STS-114 Flight Readiness Review Ferry Readiness**

Presenter **Don L. McCormack, Jr.**

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- **The STS-114 Ferry Planning Readiness Review was conducted on 4/19/05 and three issues were identified (each were resolved prior to the STS-114 Delta FPRR)**
  - **The Orbiter c.g. will be near the aft limit for ferry flight**
    - All of the middeck ballast kit will be used (1286 lbs)
    - Additional equipment (up to ~1000 lbs) has been identified that will remain in the crew module during the ferry flight to keep the c.g. within its aft limit
  - **Corrosion was found on the aft attach fittings of SCA 905**
    - The aft attach fittings were removed and shipped to KSC for refurbishment and corrosion protection
    - The fittings were shipped to DFRC on 6/16/05 and will be installed on SCA 905 by the end of June
  - **MPLM condensation control during ferry flight**
    - Due to a hazard associated with powering the MPLM shell heaters, they will not be powered during the ferry mission
    - An elevated temperature purge at DFRC prior to the initiation of the ferry mission will preclude MPLM condensation for a ferry mission in August (purge at stopovers will not be required)
- **The STS-114 Delta FPRR was conducted on 6/15/05 and the resolution of the above issues was accepted and no new issues were identified**
- **If a ferry flight is required, a Ferry Flight Readiness Milestone Review will be conducted one day prior to the start of the ferry flight**



# SPACE SHUTTLE PROGRAM

Space Shuttle Flight Operations and Integration Office

NASA Johnson Space Center, Houston, Texas



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- **Hardware summary:**

- **Orbiter: OV-103 (Discovery)**

- NEOM ferry weight (lbs): 227418 (no fluids off-loaded)
    - NEOM ferry center of gravity (in):  $X_o$  1115.4  $Y_o$  - 0.1  $Z_o$  375.1
      - NEOM mass properties are within specified limits – crew module ballast will be required (middeck ballast kit plus additional equipment that will remain on-board for the ferry flight)

- **Attach hardware and ferry plugs are ready to support**

- **Tailcone 2 is assembled at DFRC and ready to support**

- **Shuttle Carrier Aircraft (SCA): NASA 905 is ready to support**

- For SCA 905, PRCBD S041503AR3 (2/14/91) waives compliance to the crash load requirements in paragraph 3.2.2 of the Orbiter/SCA ICD (the SCA CEI specification of 6.0 g forward crash load is reduced for an Orbiter weight exceeding 192000 lbs)

- **Pathfinder: USAF KC-135 (purge equipment is not required)**

- **Ferry flight requirements are current**

- **Ferry flight configuration drawings have been released**

- **DFRC seven day turnaround with ready-to-ferry on morning of day seven**

- **Flight plan**

- **Four flight legs that will be performed over 2-days**

- Six pilots and four flight engineers are current and qualified to support ferry operations

- **Adequate airfields are available to support ferry operations**

- **Prime landing sites, weather alternates and emergency landing fields selected**



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### **STS-114 FERRY READINESS STATEMENT**

**A Ferry Planning Readiness Review was conducted in accordance with the Ferry Operations Flight Preparation Process Plan defined in NSTS 08117, Requirements and Procedures for Certification of Flight Readiness. This readiness statement certifies that the ferry requirements, enroute support facilities, aircraft, and equipment are ready to support Orbiter ferry operations.**

**Don L. McCormack, Jr.  
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